

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE PCT NATIONAL STAGE APPLICATION OF
THREEWIT, ET AL.

Art Unit: 1616
Examiner: Soroush, Ali

INTERNATIONAL APPLICATION NO: PCT/IB03/03132 Conf. No. 5091

IA Filing Date: June 10, 2003

U.S. Appln No.: 10/520,367

§ 371 Date: January 6, 2005

For: WEED CONTROL PROCESS COMPRISING THE APPLICATION OF
MESOTRIONE AND A SECOND HERBICIDE

Mail Stop Appeal Brief - Patents
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Appellants submit herewith an Appeal Brief in furtherance of the Notice of Appeal, filed in this case on September 22, 2008. This Brief is timely if filed by January 21, 2009 upon grant of an extension of time of two (2) months.

Appellants enclose herewith the fee required under 37 C.F.R. 41.20(b)(2), the required petition for extension of time for filing this brief and fees therefore. Accordingly, Appellants enclose a credit card authorization for all requisite fees. Appellants authorize the Commissioner to charge any additional fees that are due or credit any overpayments to Deposit Account No. 50-1676 in the name of Syngenta Crop Protection, Inc.

Respectfully submitted,

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I. REAL PARTY IN INTEREST

The real party in interest in this appeal is Syngenta Crop Protection, Inc.

II. RELATED APPEALS AND INTERFERENCES

With respect to other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal, there are no such appeals or interferences.

III. STATUS OF CLAIMS

The status of the claims in this application is:

Claims 1 – 16 are in the application.

Claims 4 and 7 – 8 have been cancelled.

Claims 13 – 16 stand withdrawn.

Claims 1 – 3, 5 – 6 and 9 – 12 have been rejected.

The claims on appeal are 1 – 3, 5 – 6 and 9 – 12.

IV. STATUS OF AMENDMENTS

The amendment dated August 21, 2008 filed subsequent to the March 21, 2008 final rejection has not been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The subject matter of the instant claims is a **process for reducing injury in a crop comprising sorghum** from application of a herbicidally effective amount of mesotrione to control weeds in the sorghum crop by applying the mesotrione along with a second herbicide – the second herbicide recited in the claims has been shown to act as a “**safener**” for **mesotrione use in sorghum** (as discussed on pages 1 and 2 of the specification). The claimed subject matter is:

1. A process for controlling weeds in a sorghum crop while reducing injury to such crop caused by the post-emergent application of a herbicidally effective amount of mesotrione over such crop, the process comprising applying to the locus of the weeds a herbicidally effective amount of: (i) mesotrione, and (ii) a second herbicide selected from one or more of prosulfuron, dicamba, 2,4-D, halosulfuron-methyl and quinclorac wherein the mesotrione is applied post-emergent over such sorghum crop.	Page 2, lines 3 – 4
	Page 1, lines 26 – 29 to page 2, lines 1 – 2
	Page 2, lines 4 – 8 and 28 – 29
	Page 3, lines 1 – 2
2. A process according to claim 1 in which the mesotrione is applied at a rate of between 50 and 300g/ha.	Page 2, lines 14 – 15
3. A process according to claim 1 using 0.5 to 400% of the second herbicide, based on the concentration of mesotrione.	Page 2, line 16
5. A process according to claim 1 in which mesotrione and the second herbicide are applied at the same time.	Page 2, line 9
6. A process according to claim 1 in which mesotrione and the second herbicide are applied sequentially.	Page 2, line 9

9. A process according to claim 1 in which mesotrione and the second herbicide are applied as separate compositions.	Page 2, line 10
10. A process according to claim 1 in which mesotrione and the second herbicide are applied as a single composition.	Page 2, line 10
11. A process according to claim 1 in which mesotrione and the second herbicide are applied post-emergent over such sorghum crop.	Page 2, lines 20 – 22 and page 3, lines 1 - 2
12. A process according to claim 1 in which the second herbicide is prosulfuron.	Page 2, line 11 and page 5, lines 17 – 19.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- I. Whether claims 1 – 3, 5 – 6 and 9 – 12 are unpatentable under 35 U.S.C. § 103(a) as being obvious over; WO/02100173 (Comes) in view of Kent et al. (Technology of Cereals; published 1984).

VII. ARGUMENTS

- I. Whether claims 1 – 3, 5 – 6 and 9 – 12 are unpatentable under 35 U.S.C. § 103(a) as being obvious over; WO/02100173 (Cornes) in view of Kent et al. (Technology of Cereals; published 1984).

35 USC §103(a) states:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The Examiner rejected claims 1 – 3, 5 – 6 and 9 – 12 under 35 USC §103 as being unpatentable over WO/02100173 (Cornes) in view of Kent et al.

By way of summary, the presently claimed invention relates to a process for controlling weeds in a sorghum crop while reducing injury to such crop caused by the post-emergent application of a herbicidally effective amount of mesotrione over such crop, the process comprising the application of a herbicidally effective amount of: (i) mesotrione, and (ii) a second herbicide selected from one or more of prosulfuron, dicamba, 2,4-D, halosulfuron-methyl and quinclorac to the locus of the weeds, wherein the mesotrione is applied post-emergent over such sorghum crop.

The problem that is addressed by the present invention can thus be seen as the provision of a process which allows mesotrione to be used as part of a weed control program in sorghum, given the improved crop safety afforded by the second herbicide.

Cornes:

The teaching of Cornes is limited to a herbicidal composition comprising mesotrione and a second herbicide for controlling weeds in crops such as corn (maize), wheat, rice, potato or sugarbeet. Cornes contains no specific and unambiguous teaching regarding the selective control of weeds in sorghum crops. Nor does Cornes suggest that injury to sorghum occasioned by use of mesotrione to control weeds can be reduced by use of a second herbicide.

The Examiner states in the final rejection that Cornes teaches a synergistic composition comprising mesotrione and a second herbicide, "Prosulfuron is an herbicide that may be added to the composition (see page 4, line 15)". Appellants respectively point out, however, that this quote has been taken out of context. The text to which the Examiner refers relates to additional herbicides

that may be added to the binary compositions of Cornes and that "sulphonyl ureas such as nicosulfuron, prosulfuron, bensulfuron can be added to the mixture of mesotrione and pyriftalid for use in rice". Thus, in the context of Cornes, prosulfuron is only considered with regard to a specific tertiary mix of mesotrione, pyriftalid and prosulfuron for use in rice.

Also, while dicamba is mentioned in a long list of component (B) herbicides, there is no specific and unambiguous teaching or suggestion to use a combination of the post-emergent application of mesotrione and the application of dicamba to selectively control weeds in a sorghum crop.

The herbicides 2,4-D, halosulfuron-methyl and quinclorac are not specifically mentioned in Cornes.

One of ordinary skill would have no reasonable expectation that mesotrione could be applied safely to a sorghum crop, let alone by a post-emergent application. Nor that injury to sorghum occasioned by such use of mesotrione to control weeds can be reduced by use of a second herbicide (ii).

The Examiner suggests that the difference between the instant claims and the teaching of Cornes is that Cornes does not teach the use of the composition on sorghum. While this is true, it can be seen that there are additional differences not identified by the Examiner.

More specifically, with respect to claim 12, Cornes does not teach the use of prosulfuron as a binary combination with mesotrione in cereals generally; nor does Cornes teach that prosulfuron can be used to reduce the crop injury associated with mesotrione use in sorghum.

In addition, regarding claim 3, Cornes contains no teaching or suggestion to apply 0.5 to 400% of the second herbicide, based on the concentration of mesotrione.

Recognizing the deficiencies of Cornes, the Examiner cites Kent for the teaching that sorghum is a cereal crop. The Examiner reasons that since Cornes teaches that the disclosed herbicidal combinations can be used over a wide range of crops, including cereals (page 5, lines 23-24); it would have been obvious that such combinations can be used over sorghum. However, as has been indicated above, Cornes contains no specific and unambiguous teaching regarding the selective control of weeds in sorghum crops. Moreover, regarding claim 12, Cornes only actually teaches that prosulfuron can be used in combination with mesotrione (and pyriftalid) in rice. There is

no teaching contained in Cornes to suggest herbicidal combinations comprising mesotrione and prosulfuron might have general utility in cereals.

Accordingly, Appellants respectively submit that the combination is actually made as a result of an improper hindsight analysis in view of the present invention. In the absence of the teaching of the present invention, one of ordinary skill would have no reasonable expectation that the teachings of Cornes and Kent could be combined as suggested by the Examiner in order to arrive at the presently claimed invention.

Evidence of Unexpected Results:

Appellants respectfully submit that in reaching a conclusion of obviousness, the Patent and Trademark Office must consider the "invention as a whole," which includes evidence of the invention's unexpected results. See In re Margolis, 228 USPQ 940 (Fed. Cir. 1986). Specifically, as is indicated in tables 1 and 2 of the present application, the use of mesotrione along with one or more specific second herbicides provides reduced damage to sorghum as compared with the use of a composition comprising mesotrione alone. This finding, to which the present invention relates, is completely unexpected and could not be predicted on the basis of the prior art documents cited by the Examiner – since they are all silent in this regard. It is respectfully submitted that the Examiner has not accorded proper weight to this evidence of record. For example:

Table 1, pp. 6 – 7 (excerpt)

Active Ingredient	1	2	3
Callisto 4 SC (mesotrione)	105.0	105.0	105.0
COC	1.0	1.0	1.0
UAN	2.5	2.5	2.5
Peak 57 WG (prosulfuron)	-	20.0	40.0

The amounts of herbicide are quoted as a rate equivalent to grams per hectare. The amounts of COC and UAN are quoted in %vol/vol of composition.

Callisto 4 SC is an aqueous mesotrione suspension concentrate, containing 400g/l mesotrione, available from Syngenta. COC is Crop Oil Concentrate available as Agridex. UAN is urea ammonium nitrate, a fertiliser available in bulk. Peak 57 WG is a prosulfuron composition comprising 57% of prosulfuron, available from Syngenta.

Table 2, p. 8 (excerpt)

Composition	Crop (sorghum) damage (%)	Weed Damage (%)	
		Weed 1	Weed 2
1 (Mesotrione)	13.0	40	40
2 (Mesotrione/Prosulfuron)	3.7	50	50
3 (Mesotrione/Prosulfuron)	3.0	56.7	56.7

As the data provided in the description shows (page 8, Table 2), mesotrione treatment alone (row 1) exhibited 13% damage in sorghum – whereas when a combined treatment of mesotrione and prosulfuron was used (column 2) this damage dropped to only 3.7%. Such a reduction in crop damage is both surprising and unexpected.

In view of the above arguments, Appellants respectfully submit that the rejection under 35 U.S.C. § 103(a) has been overcome and hereby request that this application be passed to issue.

VIII. CLAIMS APPENDIX

Claim 1. (Previously presented): A process for controlling weeds in a sorghum crop while reducing injury to such crop caused by the post-emergent application of a herbicidally effective amount of mesotrione over such crop, the process comprising applying to the locus of the weeds a herbicidally effective amount of:

- (i) mesotrione, and
- (ii) a second herbicide selected from one or more of prosulfuron, dicamba, 2,4-D, halosulfuron-methyl and quinclorac

wherein the mesotrione is applied post-emergent over such sorghum crop.

Claim 2. (Original): A process according to claim 1 in which the mesotrione is applied at a rate of between 50 and 300g/ha.

Claim 3. (Original): A process according to claim 1 using 0.5 to 400% of the second herbicide, based on the concentration of mesotrione.

Claim 4. (Cancelled).

Claim 5. (Previously presented) A process according to claim 1 in which mesotrione and the second herbicide are applied at the same time.

Claim 6. (Previously presented) A process according to claim 1 in which mesotrione and the second herbicide are applied sequentially.

Claims 7 – 8 (Canceled)

Claim 9. (Previously presented) A process according to claim 1 in which mesotrione and the second herbicide are applied as separate compositions.

Claim 10. (Previously presented) A process according to claim 1 in which mesotrione and the second herbicide are applied as a single composition.

Claim 11. (Previously presented) A process according to claim 1 in which mesotrione and the second herbicide are applied post-emergent over such sorghum crop.

Claim 12. (Previously presented) A process according to claim 1 in which the second herbicide is prosulfuron.

Claim 13. (Withdrawn) A process according to claim 1 in which the second herbicide is dicamba.

Claim 14. (Withdrawn) A process according to claim 1 in which the second herbicide is 2,4-D.

Claim 15. (Withdrawn) A process according to claim 1 in which the second herbicide is halosulfuron-methyl.

Claim 16. (Withdrawn) A process according to claim 1 in which the second herbicide is quinclorac.

IX. EVIDENCE APPENDIX

None

X. RELATED PROCEEDINGS APPENDIX

None

Respectfully submitted,

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